MINERALOGICAL ABSTRACTS

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R. A. HOWIE

Indexers
A. and J. M. HALL

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VOLUME 22

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Place-names are, in general, in the form used in the Columbia-Lippincott Gazetteer of the World (1952 edition); alternative forms are given on occasion.

Grateful thanks are due to those readers who have notified us of errors in volume 22 *Mineralogical Abstracts.*

ORGANIZATION OF ABSTRACTS

Arising from a decision taken at the meeting of the INTERNATIONAL MINERALOGICAL ASSOCIATION in Copenhagen in 1961 the Mineralogical Societies of America and Great Britain agreed to issue a joint statement to National Societies adhering to the Association inviting each Society to organize contributions of abstracts of papers published in the journals of its country on subjects relevant to *Mineralogical Abstracts*. This invitation was issued and has brought a gratifying response. Members of Societies which have agreed to co-operate in this way are entitled to receive *Mineralogical Abstracts* for their personal use at a reduced rate of subscription in application *which must be made through their National Society*. The countries now co-operating include: AUSTRALIA, AUSTRIA, BELGIUM, BULGARIA, CANADA, CZECHOSLOVAKIA, DENMARK, EGYPT, FINLAND, GERMANY, INDIA, ISRAEL, ITALY, JAPAN, NETHERLANDS, NEW ZEALAND, NORWAY, PAKISTAN, PORTUGAL, SPAIN, SWEDEN, SWITZERLAND. Individual mineralogists and petrologists in countries not represented in the Association, or not yet co-operating through their National Society, provide abstracts from the literature of ARGENTINA, BRAZIL, and SOUTH AFRICA.

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ERRATA

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Abstract number	
71-192	*for* Mantell, E. *read* Mantei, E.
71-199	*for* purperite *read* purpurite
71-215	*for* Sobolov, V. S. *read* Sobolev, V. S.
71-242	*for* Brezný, B. *read* Brežny, B.
71-255	*for* β-mirargyrite *read* β-miargyrite
71-398	*for* Chukrov, F. V. *read* Chukhrov, F. V.
71-821	p. 82, l.h. column, *for* Woolard, G. P. *read* Woollard, G. P.
71-827	*for* landsfordite *read* lansfordite
71-829	p. 84, l.h. column, Němec, *for* Schief-gurtelbilder *read* Schief-gürtelbílder
71-1104	*for* fleures *read* fleuves
71-1142	*for* Funkhouser, J. C. *read* Funkhouser, J. G.
71-1369	*for* Alcarán *and* Alarcán *read* Alacrán
71-1547	*for* rhodocrosite *read* rhodochrosite
71-1914	*for* Thenk, B. K. G. *read* Theng, B. K. G.
71-1948	*for* minas *read* micas
71-2189	*for* 880°C $10^{-1\cdot75\pm1\cdot2}$ *read* 880°C $10^{-17\cdot5\pm1\cdot2}$
71-2317	*for* brasilianite *read* brazilianite
71-2320	*for* lithiophyllite *read* lithiophilite
71-2530	*for* bambollaite *read* bombollalite
71-2567	*for* Ermilova, L. R. *read* Ermilova, L. P.
71-2871	the locality Gaudrak referred to in the paper and in the abstract is a mis-transliteration from the Russian and should read Gaurdak

ABBREVIATIONS USED IN REFERENCE TO PUBLICATIONS

Abhdl.	Abhandlungen
Abstr.	Abstract, -s
Abt.	Abteilung
Acad., Accad., Akad.	Academy, & *equiv.*
Adv.	Advancement
Agric.	Agricultur-al, -e
Anal.	Analy-st, -tical, &c.
Ann., An.	Annals, Anales, & *equiv.*
Anorg.	Anorganisch
Appl.	Applied
Arch.	Archives
Asoc., Assoc.	Association, & *equiv.*
Astron.	Astronomical
Bd.	Band
Beitr.	Beitrgäe
Ber.	Bericht-e
Berg.	Bergwesen
Bol., Boll., Bull.	Bulletin, & *equiv.*
Bur.	Bureau
Ceram.	Ceramic, & *equiv.*
Chem., Chim.	Chemi-cal, -stry, & *equiv.*
Cien.	Ciencia, -s
Circ.	Circular
Cl.	Classe
Com.	Comisión
Comm.	Commission
Conf.	Conference, & *equiv.*
Congr.	Congress, & *equiv.*
Contr.	Contributions
C.R.	Comptes Rendus
Crist., Cryst.	Crystallograph-ical, -y & *equiv.*
Dept.	Department, & *equiv.*
Diss.	Dissertation
Divn.	Division
Dokl.	Doklady=C.R.
Econ.	Economic
Educ.	Education
Eng.	Engineering
Exped.	Expedition
Exper.	Experimental
Expl.	Exploration
Fac.	Faculty
Fig(s).	Figure(s)
Fis.	Fisicale, fisico
Fören.	Föreningen
Förh.	Förhandlinger
Fortsch.	Fortschritt, -e
Gen.	General
Geol., géol.	Geolo-gy,-ical,-ist, & *equiv.*
Gesell.	Gesellschaft
Geo-chem., chim.	Geochemi-cal, -stry, &c.
Geogr.	Geograph-y, ical, &c.
Geophys., geofis.	Geophysic-al, -s, &c.
Govt.	Government
Hdbh.	Handbuch
Illustr.	Illustrat-ed, -ions
Imp.	Imperial
Industr.	Industr-ial, -y
Inform.	Information
Inst.	Institute, institution, & *equiv.*
Instr.	Instruments
Int.	Interior
Intern.	International
Invest.	Investigations
Issl.	Issledovaniye=investigation
Ist.	Istituto
Izd.	Izdanie=publication
Izvest.	Izvestiya
Jahresb.	Jahresbericht
Jahrb.	Jahrbuch
Jorn., Journ.	Journal, & *equiv.*
Khim.	Khim-ie, &c.
Kl.	Klasse
Krist.	Kristallographie, &c.
Lab.	Laboratory
Lit.	Literary
Mag.	Magazine
Mat., Math.	Mathematical, & *equiv.*
Medd.	Meddelelser
Mem., Mém.	Memoir, -s, & *equiv.*
Metall.	Metallurg-ical, -y
Min.	Mineralog-ical, -ist, -y
Misc.	Miscellaneous
Mitt.	Mitteilungen
Mh.	Monatsheft
Mus., Muz.	Museum, & *equiv.*
Nac., Nat., Naz.	National, & *equiv.*
Natur.	Natur-al, -alist, & *equiv.*
Natur-w, -v.	Naturwissenschaft, & *equiv.*
Obraz.	Obrazovanie=education
Obshch.	Obshchestva=society
Petr.	Petrolog-ical, -y, & *equiv.*
Petrol.	Petroleum
Phil.	Philosophical, &c.
Photos.	Photographs
Photomicros.	Photomicrographs
Phys.	Physic-al, -s, & *equiv.*
Pl(s).	Plate(s)
Polytech.	Polytechnic, & *equiv.*
Pract., Prakt.	Practical, & *equiv.*
Proc.	Proceedings
Prof.	Professional
Prosp.	Prospecting
Publ.	Publication(s), published
Rasv.	Razvedka=survey
Rec.	Records
Ref.	References, referata
Rend.	Rendiconti
Repb.	Republic
Rept.	Report(s)
Res.	Research
Reserv.	Reserves
Resrcs.	Resources
Rdsch.	Rundschau
Rev.	Review
Roy.	Royal, & *equiv.*
Sborn.	Sbornik=magazine
Sch.	School, Schule
Sci.	Science
Sect.	Section
Sedim.	Sedimentary
Ser., sér.	Series, & *equiv.*
Serv.	Service
Sitzb.	Sitzungsbericht
Skr.	Skrift, -en, -er
Soc.	Society, & *equiv.*
Sondbd.	Sonderband
Spec., spez.	Special, & *equiv.*
Stand.	Standard(s)
Stn.	Station
Suppl.	Supplement
Surv.	Survey, -or
Symp.	Symposium
Tab(s).	Table(s), tabellen
Techn.	Technolog-ical, -y
Tids(s)kr.	Tids(s)krift, -en
Tijdschr.	Tijdschrift
Trab.	Trabajos
Trans.	Transactions
Transl.	Translat-ed, -ion
U.A.R.	United Arab Republic
Uch.	Uchennye=learned
Ucheb.	Uchebnyi=teaching
Unders.	Undersögelse, undersökning
Univ.	University, & *equiv.*
Verhdl.	Verhandlungen
Vidensk.	Videnskaps
Volc., Vulk.	Volcanolog-ical, -y, &c.
Vses.	Vsesoyuznyi=All-Union
Vyssh.	Vysshikh=higher
Wiss.	Wissenschaft
Zap.	Zapiski=memoirs
Zav.	Zavodskaya=factory
Zaved.	Zavedenii=institution
Zeits.	Zeitschrift
Zhurn.	Zhurnal=journal
Ztg.	Zeitung

ABBREVIATIONS AND SYMBOLS

used in the text of abstracts

M.M. .. Mineralogical Magazine : M.A. .. Mineralogical Abstracts : A.M. .. American Mineralogist

CHEMICAL & CHEMICAL-PHYSICAL

cation-exchange-capacity	c.e.c.
chemical analysis	chem. anal.
concentrated	conc.
differential thermal analysis	d.t.a.
dilute	dil.
disintegrations per minute	d.p.m.
equivalent U_3O_8	eU_3O_8
ethylenediaminetetra-acetic acid	EDTA
heat of formation (absolute temperature subscript)	ΔH_t
hydrogen ion conc. acidity	pH
insoluble residue	insol. res.
isotopes, e.g.	^{40}Ar, ^{40}K
loss on ignition	ign. loss
milliequivalent	me.
microgramme	μg
million-years	m.y.
not determined	n.d.
not found	nt. fd.
not present	nil
parts per million	p.p.m.
rare earths	*TR* or *RE*
standard mean ocean water	SMOW
strength of solution, normal	*N*
— — — molar	*M*
substances in ionic state	
anions, e.g.	Cl^-, SO_4^{2-}
cations, e.g.	K^+, Fe^{3+}
thermogravimetric analysis	t.g.a.
trace	tr.
X-ray fluorescence analysis	XRF

CRYSTALLOGRAPHIC & STRUCTURAL

Ångstrom unit (10^{-8} cm)	Å
crystal axes	*a*, *b*, *c*
— face indices	(hkl)
— form indices	{hkl}
— zone indices	[hkl]
indices of X-ray diffractions	hkl
intensity,	*I*
— relative	I/I_0
interplanar spacing	*d*
mica structural polymorphs	$1M_1$, $2M_1$
Siegbahn units	kX
space group. These words will be written in full	
unit cell, formula units	*Z*
— — repeat distances	*a*, *b*, *c*
— — reciprocal lattice lengths of edges	a^*, b^*, c^*
— — interaxial angles direct lattice	α, β, γ
— — — — reciprocal lattice	α^*, β^*, γ^*

OPTICAL

dispersion, e.g.	$r > v$
electron microscopy	EM
extinction angle, e.g.	$\gamma : c$
infrared	IR
optic axial angle	2V
— — plane	O.A.P.
refractive index, in text	refr. ind.
— — of isotropic mineral	*n*
refractive indices	
of uniaxial mineral	ω, ϵ
of biaxial mineral	α, β, γ
sign of biaxiality	
negative	$2V_\alpha$ or $-$
positive	$2V_\gamma$ or $+$
ultraviolet	UV

PHYSICAL

calculated	calc.
calorie	cal.
calorie, large	kcal.
cycles per second	c/s
degree centigrade	°C
density	*D* (quote units)
—, relative, e.g.	D_4^{20}
electron paramagnetic resonance	e.p.r.
electron spin resonance	e.s.r.
gramme	g
hardness	H.
melting-point	m.p.
micron (10^{-4} cm)	μ
millimicron (10^{-7} cm)	mμ
nanometre (10^{-7} cm)	nm
natural remanent magnetization	n.r.m.
pounds per square inch	lb/in.^{2}
pressure	*P*
soluble	sol.
specific gravity, terms of reference not known	sp. gr.
temperature	*T*
Vickers hardness number	VHN
wavelength	λ

SYMBOLS

approximately equal to	$\sim$
equal to	$=$
equal to or greater than	$\geqslant$
equal to or less than	$\leqslant$
greater than	$>$
less than	$<$
not equal to	$\neq$
parallel to	$\parallel$
per cent.	%
per mille	‰
perpendicular to	$\perp$
proportional to	$\propto$

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